Northern Everglades Initiative Update

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Water Resources Advisory Commission
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Lake Okeechobee Technical Plan Requirements

- **Identify facilities to achieve TMDL**
  - **Size**
  - **Location**
  - **Schedule**
  - **Budget**
  - **Costs**
- **Provide additional measures to increase water storage and reduce excess water levels in lake and discharges to tide**
  - **Identify storage goal to achieve desired lake levels and inflow volumes to estuaries while meeting other water related needs**

Water Quality and Quantity Analyses

- **Water Quantity**
  - **Water Budget analysis using Regional Simulation Model**
- **Water Quality**
  - **Spreadsheet evaluation of phosphorus reduction**
  - **Builds upon 2007 Lake Okeechobee Protection Plan Update**

Alternatives 1, 2, 3 and 4

Alternative 1 Summary

- **Alternative 1 includes-**
  - **Level 1, 2, and 3 Management Measures**
  - **CERP Lake Okeechobee Watershed Project Tentatively Selected Plan features not in Levels 1-3**
    - **Kissimmee Reservoir**
    - **Istokpoga Reservoir**
    - **Istokpoga STA**

Alternatives 2, 3, and 4

- **Alternatives 2 and 3 build upon Alternative 1**
- **Alternative 2**
  - **Focus on storage to meet Lake Okeechobee stage envelope and estuaries salinity envelopes**
  - **Additional storage in Lower Kissimmee, Lake Istokpoga and Fisheating Creek**
  - **~1.3 million acre feet of storage**
- **Alternative 3**
  - **Focus on meeting Lake Okeechobee Total Maximum Daily Load**
  - **Taylor Creek/Nubbin Slough- Deep Injection Well, S-133 Water Quality Treatment**
  - **Lake Istokpoga and Fisheating Creek- STAs, Reservoir assisted- STAs**
  - **EAA- STA adjacent to S-4**
- **Alternative 4**
  - **Integrates Alternative 2 and 3**

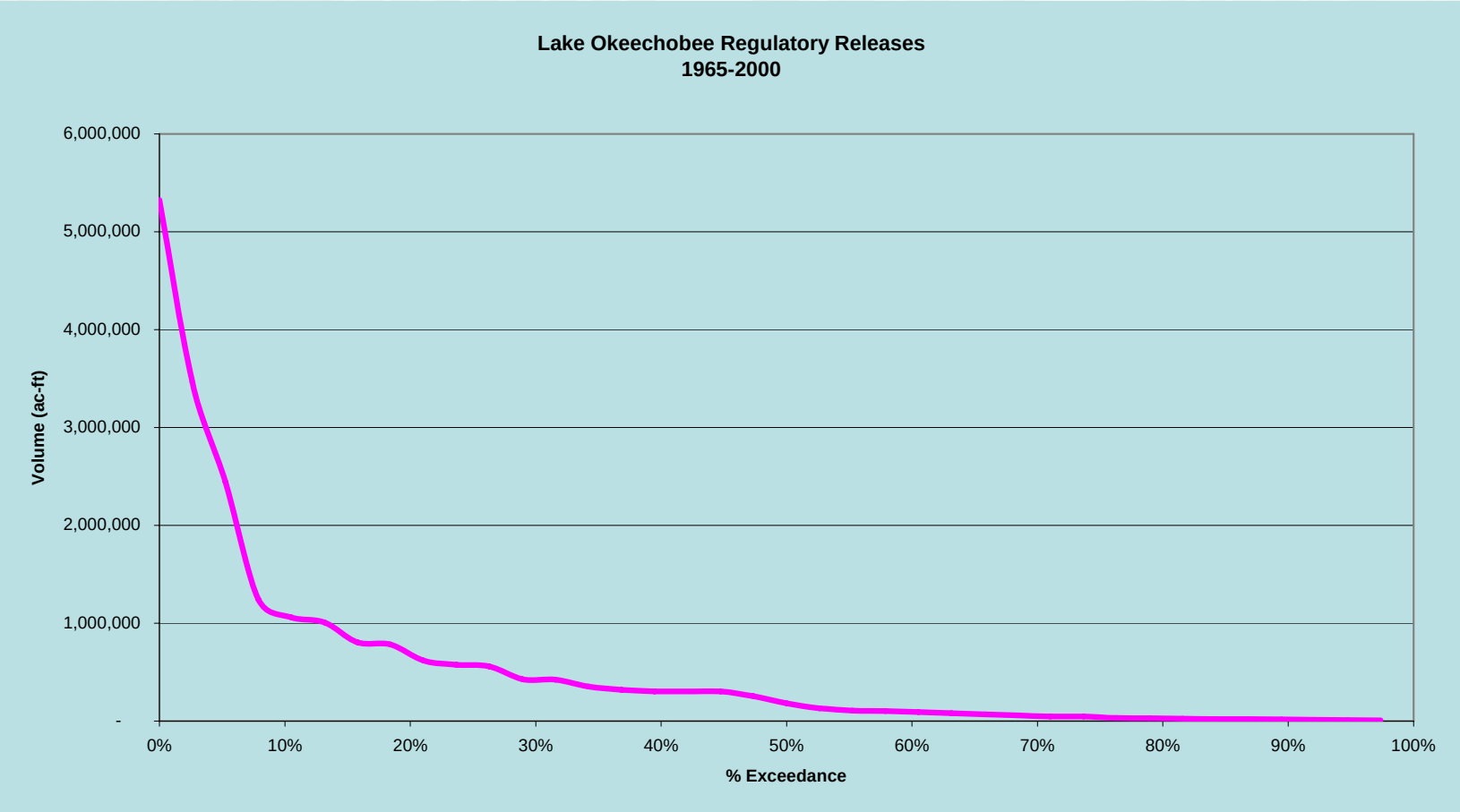
Summary of Alternatives

- **Alternative 1- Common Elements**
- **Alternative 2- Water Storage**
- **Alternative 3- Water Quality**
- **Alternative 4- Integrates Alternative 2 (Storage) and Alternative 3 (Water Quality)**

Alternative 1, 2, 3, and 4 Water Quantity Analysis

Defining the magnitude of the problem

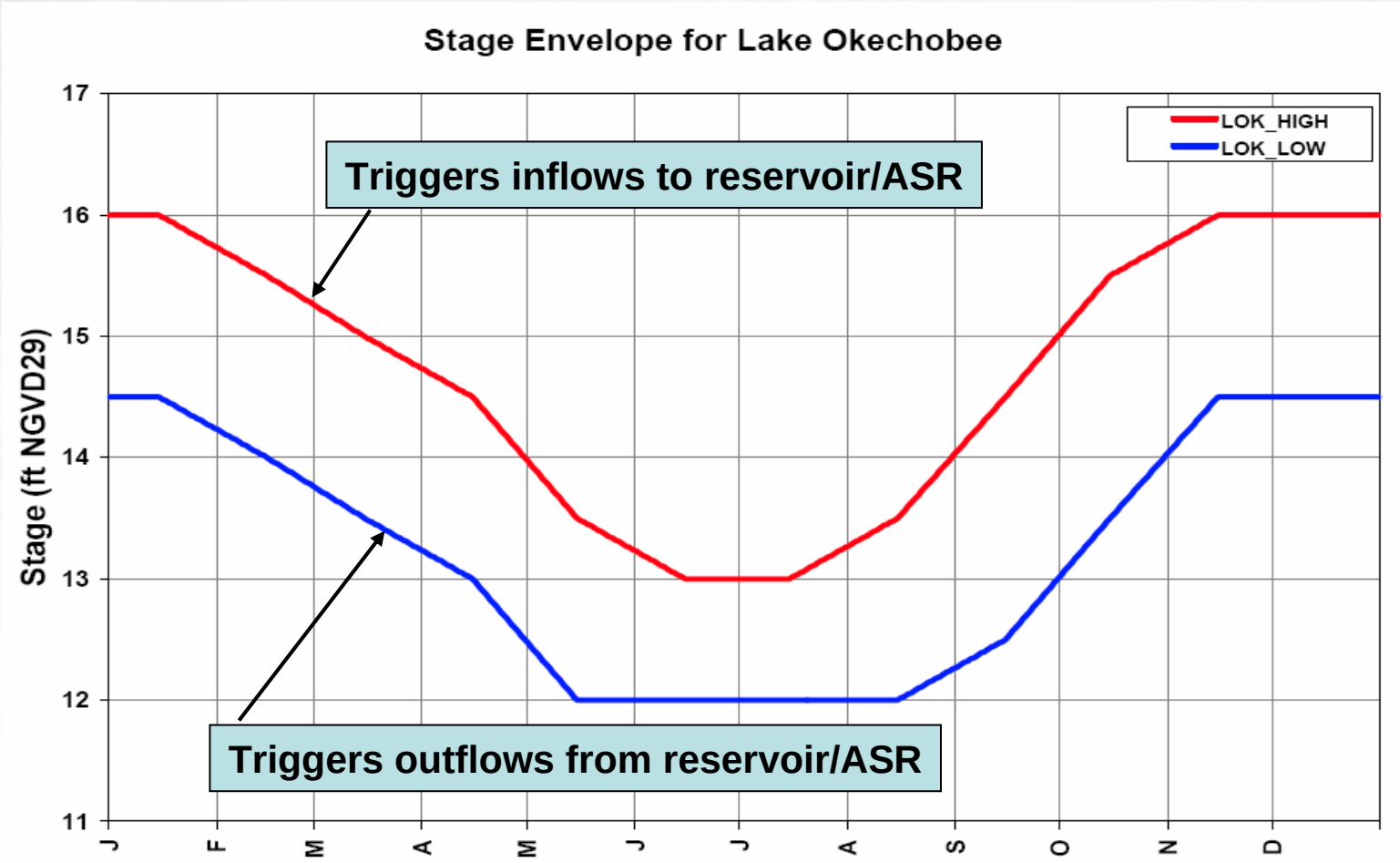
Lake Okeechobee regulatory releases
based upon Restudy 2050 Future Base



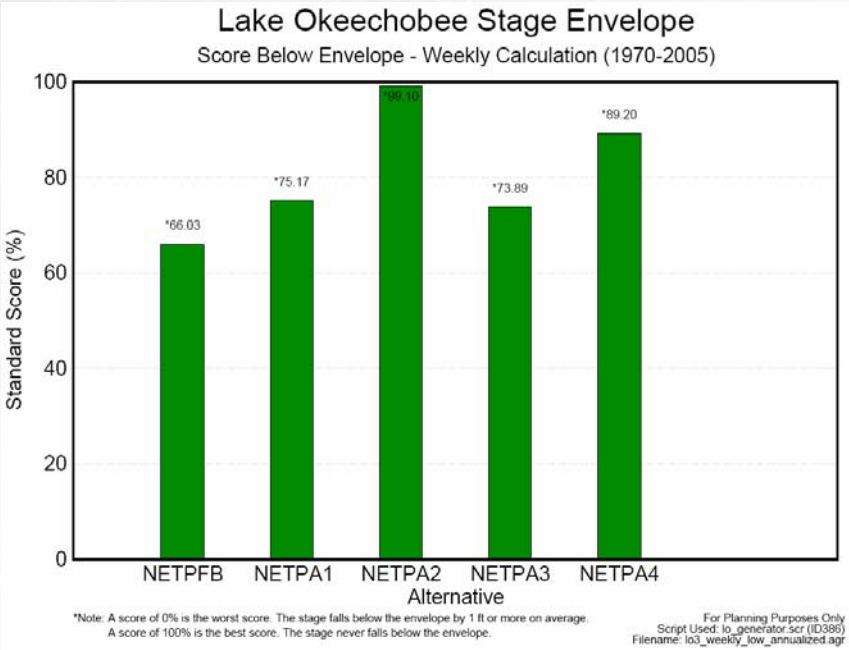
Magnitude of Storage in Alternatives 1, 2, 3 and 4

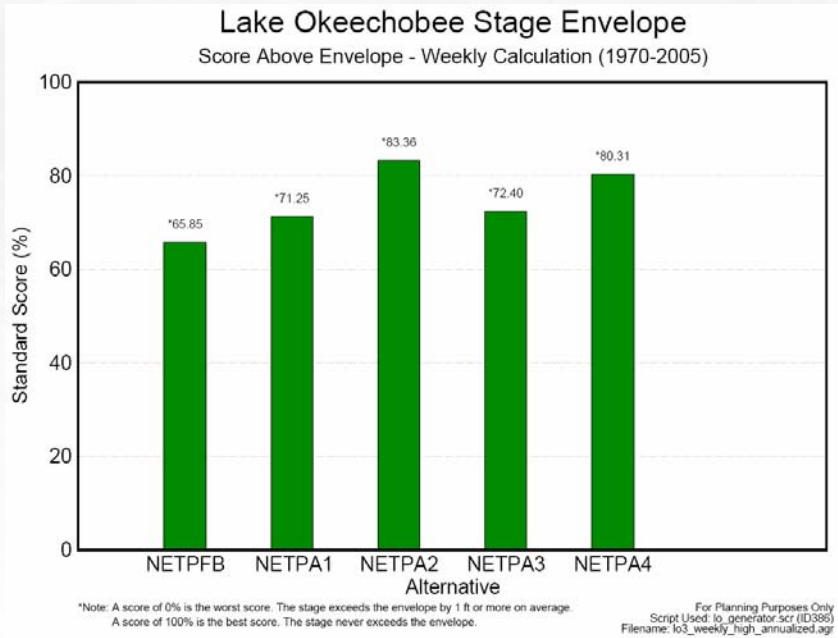
- **Alternative 1- ~265,000 ac ft- surface storage**
- **Alternative 2- ~1,300,000 ac ft- surface storage**
- **Alternative 3- ~ 330,000 ac ft- surface storage**
- **Alternative 4- ~ 900,000 ac ft- surface storage**

Regional Trigger For Inflows/Outflows Through Reservoir and ASR Management Measures

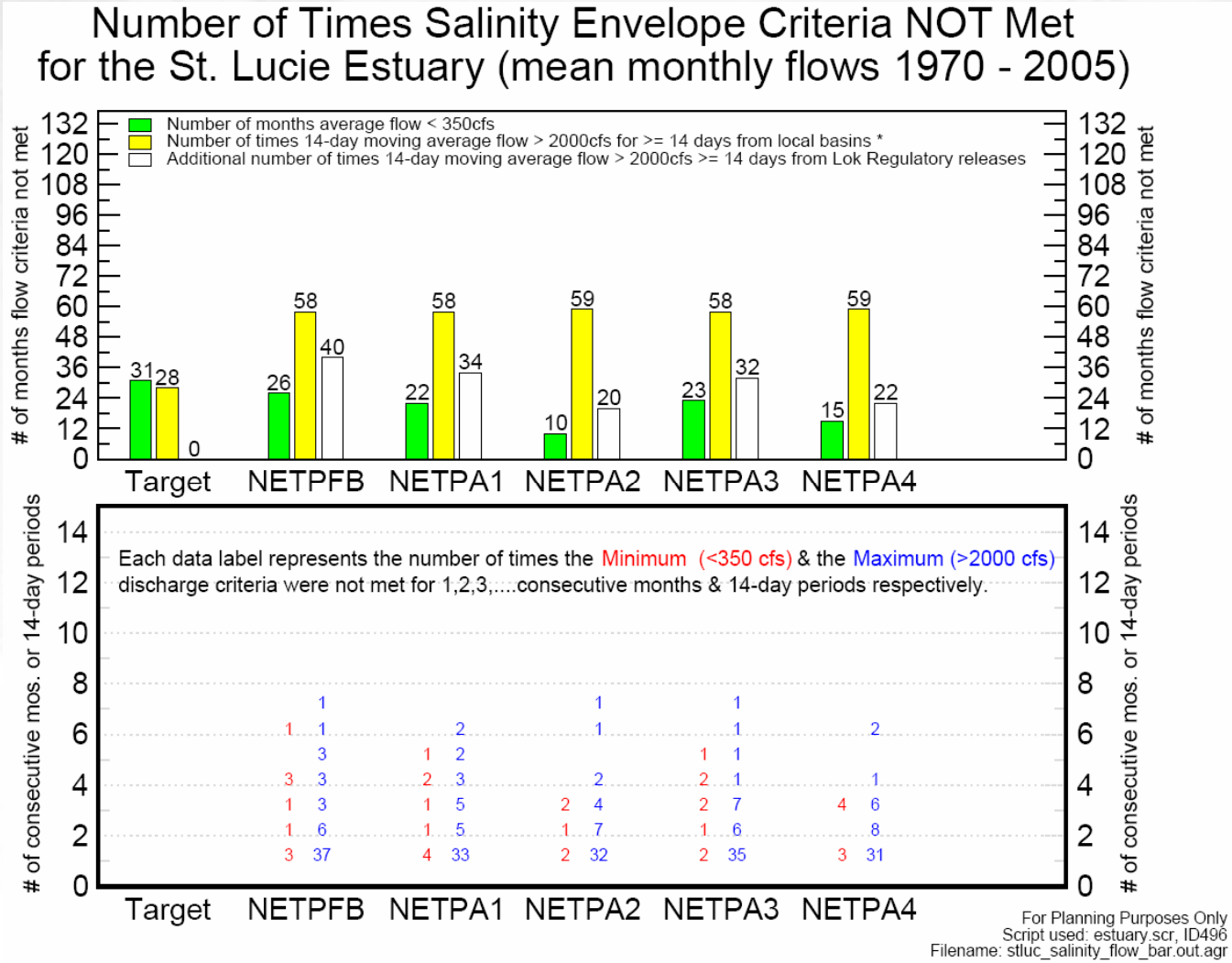


Lake Okeechobee Performance

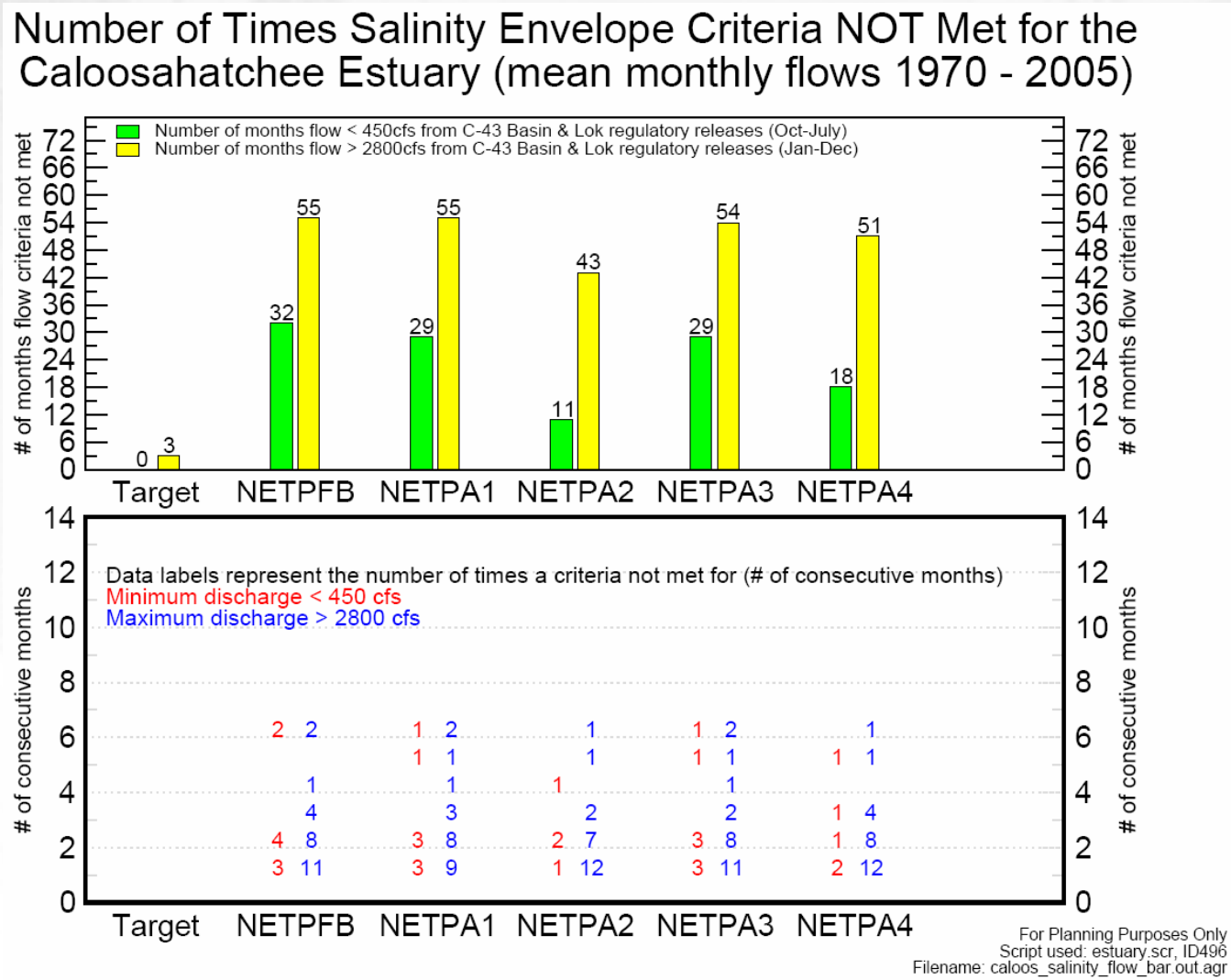




St. Lucie Estuary Performance



Caloosahatchee Estuary Performance



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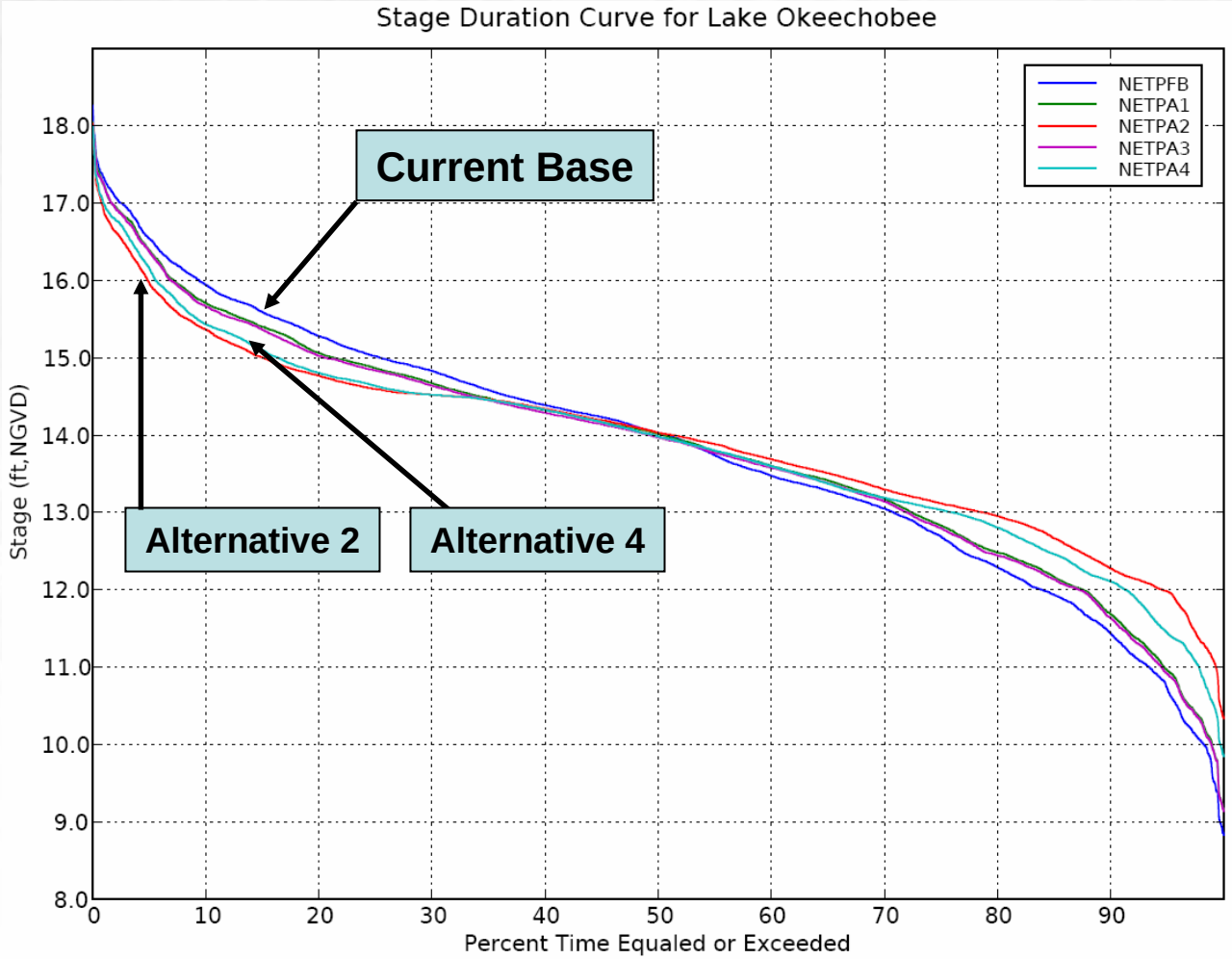
Caloosahatchee Estuary Performance

Number of months discharge >2800 cfs (432 month simulation)

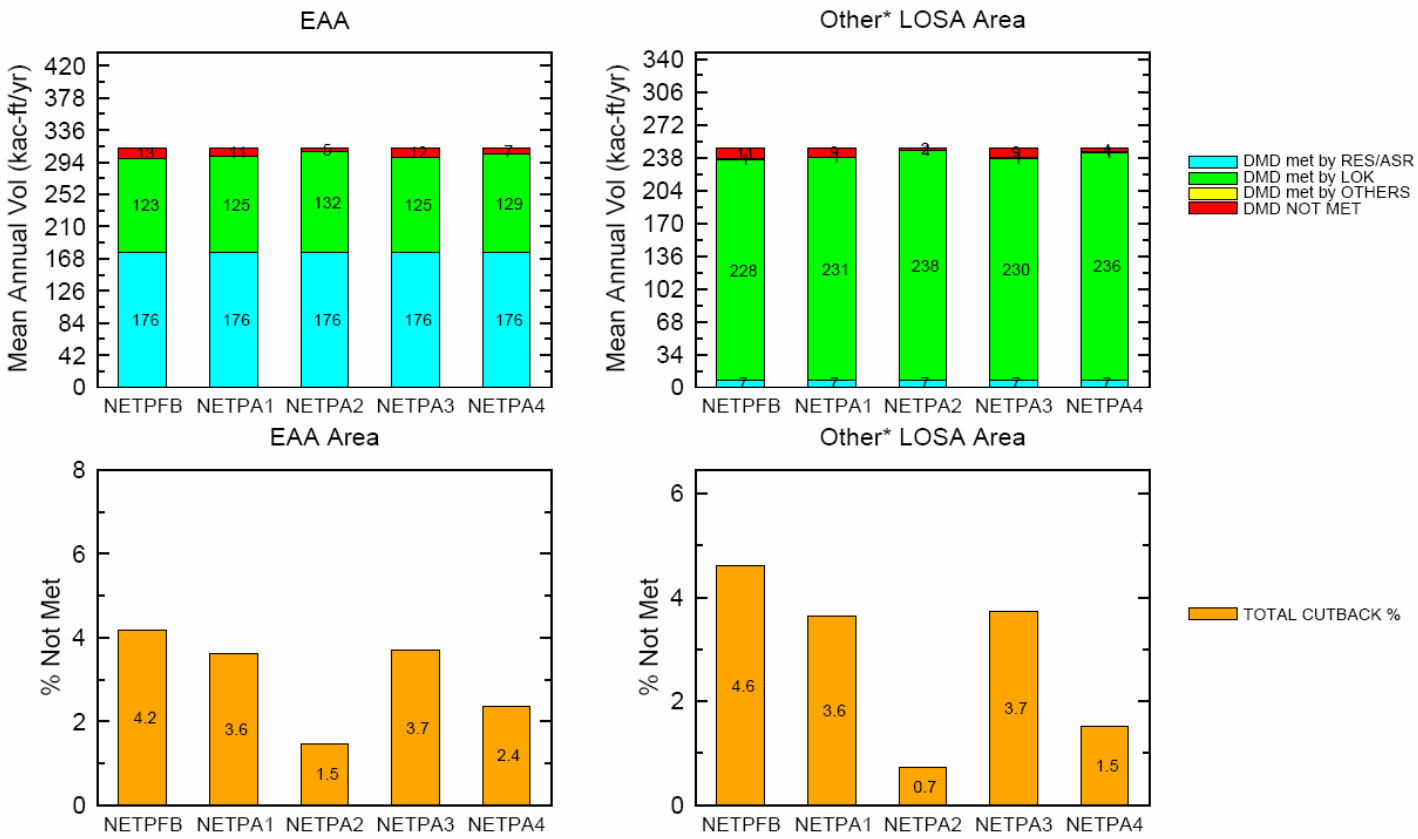
	NETPFB	NETPA1	NETPA2	NETPA3	NETPA4
Number of months Lake Okeechobee regulatory discharges > 2,800 cfs	13	13	9	13	9
Number of months Caloosahatchee Basin > 2,800 cfs	28	27	26	27	26
Number of months the combination of Lake O and Basin runoff discharges > 2,800 cfs	14	15	8	14	16
Number of months S-79 > 2,800 cfs	55	55	43	54	51

Stage Duration Curve for Lake Okeechobee



Water Supply Performance

Mean Annual EAA/LOSA Supplemental Irrigation: Demands & Demands Not Met for -



Other LOSA Areas: S236, S4, L8, C43, C44, North & Northeast Lakeshore, & Lower Istokpoga

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Alternatives 1, 2, 3 and 4 Water Quality Analysis

Water Quality Summary

- **For the period from 1991-2005**
  - **Average annual phosphorus loading= 514 metric tons**
  - **Average annual phosphorus concentration= 163 ppb**
- **Phosphorus TMDL for Lake Okeechobee**
  - **140 metric tons 5-year rolling average**
  - **35 metric tons attributed to atmospheric deposition**
  - **105 metric tons allowable from all surface water inflows**

Summary of Phosphorus Loading with Alternative 1

Load reduction from Level 1 and 2 Management Measures	-239 mt
Load reduction from remaining Alternative 1 Management Measures	-62 mt
Total Load Reduction from Alternative 1	-301 mt

Initial Annual Average P Load	514 mt
TMDL Allocation	-105 mt
Remaining Load	409 mt
Load reduction from Alternative 1	-301 mt
Remaining Load To Be Addressed	108 mt

Summary of Phosphorus Loading with Alternative 2

Load reduction from Alternative 1	**-301 mt**
Load reduction from remaining Alternative 2 Management Measures	**-15 mt**
Total Load Reduction from Alternative 2	**-316 mt**

Initial Annual Average P Load	**514 mt**
TMDL Allocation	**-105 mt**
Remaining Load	**409 mt**
Load reduction from Alternative 2	**-316 mt**
Remaining Load To Be Addressed	**93 mt**

Summary of Phosphorus Loading with Alternative 3

Load reduction from Alternative 1	**-301 mt**
Load reduction from remaining Alternative 3 Management Measures	**-63 mt**
Total Load Reduction from Alternative 3	**-364 mt**

Initial Annual Average P Load	**514 mt**
TMDL Allocation	**-105 mt**
Remaining Load	**409 mt**
Load reduction from Alternative 3	**-364 mt**
Remaining Load To Be Addressed	**45 mt**

Summary of Phosphorus Loading with Alternative 4

Load reduction from Alternative 1	**-301 mt**
Load reduction from remaining Alternative 4 Management Measures	**-59 mt**
Total Load Reduction from Alternative 4	**-360 mt**

Initial Annual Average P Load	**514 mt**
TMDL Allocation	**-105 mt**
Remaining Load	**409 mt**
Load reduction from Alternative 4	**-360 mt**
Remaining Load To Be Addressed	**49 mt**

Phosphorus Results Summary

	Load Reduction in Lake Inflows	Load Reduction from In-Lake Water
Alternative 1	301 mt	0 mt
Alternative 2	316 mt	36 mt
Alternative 3	364 mt	0 mt
Alternative 4	360 mt	74 mt

Next Steps in Planning Process

- **Additional analysis related to the storage goal requirement of legislation**
- **Complete preliminary evaluation of availability of water from Upper Kissimmee Subwatershed**

Topics to be included in report

- **Background and Summary of Previous Studies and Ongoing Projects**
- **Review Water Quality of Basins flowing into Lake Okeechobee**
- **Water Budget Analysis**
- **Formulation of Alternatives**
- **Alternative Evaluation, Comparison, and Description of Recommended Plan**
- **Recommended Projects and Actions**
- **Plan Refinement and Revision**


Questions